Notebook Series -- Notebooks by Edison
Notebook, N-15-03-04

This notebook contains one dated entry from March 1915. All entries are by Edison. At the beginning of the book are two pages of notes on phenol, toluol, aniline, and other organic products. The remaining entries pertain to the manufacture of kinetoscopes, disc and cylinder records, Bates numbering machines, and other items produced by the Edison Phonograph Works. Included are notes on machinery needed for factory buildings reconstructed after the fire of December 1914, along with plans regarding labor, output, and efficiency measures. Some of the entries deal with the trucking of parts and supplies to the various departments of the Edison Phonograph Works, while others relate to inspections, gauges, and other quality control measures. The pages are unnumbered. Approximately 25 pages have been used.

B Point,

Benzol	80
Toluol	109
Nitro Benzol	213
" Toluol	225
Aniline	182
Toluidine	198

In reducing with iron Copper the filings slightly — This makes local action & hastens reduction

In practice 100 pts Nitro Benzol yields 100 pts Aniline — 60

Keep nitrates with Nitrate Soda or Sulfuric —

"Aniline Oil" is a trade name for Aniline Toluidine & pounds Toluidine —

Anilene pure dont make pigments to any extent

Rasing w/ Germany has a synthetic Carbolic plant Whenever the price of Carbolic goes beyond 14 cents he starts it — This shows that it can be made around 14 cents —

3/4/15 Kinetoscope 30 week schedule

Wm Smith Opr

		OK	Bad	Due	Surplus			
Monday Hours 10	186	30	0	0	0	Thursday Hours 10	46	
	131	32	0	0	2		84	
	174	30	1	1	0		21	
	89	61	2	1	0		30	
	27	60	0	0	0		86	
Tuesday Hours 9	34	30	1	1	0	Friday Hours 10	141	
	29						180	
	87						176	
	21						42	
							41	
Wednesday Hours 10	138					Saturday Hours 5½	38	
	171						31	
	68						27	
	30							
			3					1

Slip given on next weeks schedule of Card the parts due

Correction for surplus made once month

Production 97 Liable to discharge of Falls below 95% of Efficiency Engr - or 98% OK parts -

1 Cent hour Efficiency of 97½ 2 Cents of 100%

Tapped hole gauge - & gauge for screw that goes in Tapped hole This includes Even Machine Screws —

Testing Machine for springs

Our tool sharpener for Each Dept of course called or 1 for 2 or more depts

All Drills kept double set ~~as~~ & Changed ——— ?
find this out —

High speed Cutting Tools -
Bench gauges —

Bushings gauged 2 or 3 times at work on Die jigs or Screw Tools —

Arrange all burrs taken off —

Use Scleroscope for hardened work — test each piece —

The Dept Trucker goes with his truck to the Various Depts each day to get his parts due his Dept under the weekly schedule & returns them to be put up the various boxes for mfr in his Dept, all other Depts do the same

He next gets the proper amount of unmfd stock from the large & small stock room -

In afternoon he distributes along the mfg machines the stock for the next day -

The men on mfg machines - turn in parts in morning made in previous afternoon & in at 12 noon what they made in forenoon - so all can be inspected -

The parts turned in by the men are to be entered on their Card -

Disc only				Hand		
Number of machines	Capacity	Days auto	Weeks supply		Day	Week
1	5000	1	4	1	3500	3/4	2
3	4000	1	4	1	2500	1	2
4	3500	1	$3\frac{1}{2}$	1	1500	$1\frac{1}{4}$	2
11	3000	1	$3\frac{1}{2}$	1	800	3	2
7	2500	1	2	1	700	3	"
9	2000	1	2	1	300	7	"
3	1500	2	3	1	175	8	"
14	1000	2	2	1	200	10	"
3	800	3	$2\frac{1}{4}$	1	85	23	"
4	700	3	2	1	70	29	"
4	600	4	2				
5	500	4	2				
2	400	5	2				
1	350	5½	2				
2	300	7	2				
2	250	8	2				
1	200	10	2				
1	125	16	2				
1	120	16	2				

93 machines required—

Have 162 = But this is only for disc - which takes 21% of the capacity of the 93 machines

54 days employed 198 days unemployed

	parts	Daily Schedule	Daily Total	Weeks	
Disc	104	160	16640	2	183000
Cylinder	68	80	5440	"	60000
B13	329	32	10528	4	231000
Rivets	415	5	2075	8	91000
			34683		

1 girl Calliperers 8 pace rivets
4800 in 10 hours

Requires 3 girls in Screw Mach Dept

Disc – Screw Dept –

Gauging	4	girls
Supplies to other Depts	1	"
Card Index	1	"
Trucker for supplies	1	Man
Bookeeper ~~and~~	1	Man
Bookeepers girl	1	girl
Dry Manager	1	Man
Floor Stock boys	2	Boys
Travelling Inspectors	2	Man
Tool setters	4	"
Oil Chips + part Trucker	1	"
Oil + part separator	2	"
Efficiency Engr	1	
Oiler + Cleaner	1	"
Tool sharpener	1	"
Burning	2	girls –
	26	

Screw mach – Where one machine makes many parts The tools for all the parts this machine is to make is stored in Cupboard handy to it –

Same in all other Dept
Some will be in locked boxes

Devise Split Screw guide tube & holder for clock –

When say truck man from the Dept comes for his parts for 200 phono Disc 80 Cy 30 bag & 5 Knobs daily He has marked boxes which go with the truck takes with it

These boxes are passed over the Counter, an mass of parts are brot to weigh machine by a scoop & weighed & parts left over in the scoop returned to ~~the~~ boxes

The Disc & Cy parts get every day — 10 lb & Knobs one twice week alternate days

The boxes in each Dept has its boxes so marked that those going to another Dept are placed together —

Disc	parts
Grinding	30
Punch	60
Blacksmith	40
Lathe	26
Gear	44
Plating	59
Japan	9
Horn assembly	17
Grinding Castings	14
Sub assembly	46
Screw	104
	449 Operations
boxes	898

Use The Two short Extension buildings Bottom floor to store tested Motors

300 inches long 12 motors high 16" to Motor 16 in Row 200 machines in one rack
11 Rows of racks – 2 weeks output requires 9 racks – if filled Entirely stores 2200 Disc Motors

In addition there will be 300 in test racks in assembly room & some in Cabinet assembly building

The other short building to store Cylinder Kinetic Bin & Bottles

Board showing pieces of block used,

Hold

Screw block on floor at corner made several days supply

Assembly room —

Racks to hold 2 days output
+ Kept running for Discs
Cylinders
Bots
Rolls

All Kept running —

4 Booths With Cabinets to test noise disc Mac
Cabinets wheeled in booths with Motors in
2 Booths for Cylinders
Same as Disc
Motors put in Cabinet, passed in

Nuscrax 4 Rows 50 ft Long 3
Motors high 37 Machines in 11 Shelf —
Total 444 machines

Always use same Cabinets
for Disc + Cy — for noise
test will require say 12
for disc —

Reiss should get me time
on assembling Big Mac
Ditto Bales, various Machs,

Stop purchasing daily of a lot of little things — Codify & have a stock list of all

Req route schedule things for Dist-Cy Big Trucks Batteries Kinetos —
with maximum & minimum & when to order

Buy for yearly wants at best prices & only order shipped when needed

Start board for sample each kind stock used for the 5 machines — priced where possible —

All special stuff keep under special & never mix with schedule stock —

Adopt visual system in stock rooms —

One extra man each dept
used for sub- + he should
be general all around man

Where man used a large
number jigs bunch them in
Cupboard near tools he uses

Take the Bliz Machine
say 100 parts must be
drilled on a schedule of
160 a week 30 parts daily

1600 parts wanted weekly
Say each man averages 400
parts daily or 2200 per
week -
This would take about 7
men -
Each man would have
14 jigs, work 4 hours on
Each jig per week

If schedule reduced to 140
Machines week then 6 men
working 17 jigs each would
do it
If schedule reduced to 117 then
5 men Each with 20 jigs would do it
If reduced to 94 4 men would
do it Each having 25 jigs
for Each reduction of 23 machines
a week 1 man can be laid off
his jigs devided among the others
Next page

Eachman has placed near his tools 2 boxes 1 has a weeks supply of a certain part, the other box or 1/2 of box is empty he drills say to schedule the required number & they go in other 1/2 of box. Each box holds a weeks work — If he is working 22 jigs, he does 4 jigs per day & each day the block filled goes to block room —

This plan is to be adopted with Big Kinetic & Machinist Employees who can set their own progressive Drills & only use a few drilling Machines —

for larger production 1 man can be ordinary labor & dont set drills but only feeds 3 or 4 jigs —

Man No 1 attends to 16 Drill jigs
Jigs in Cupboard near his Drilling Machine
7 Drills used—

Monday 7 am finds near his
machine 20 boxes each divided
by a partition in the Center

In one half are 165 parts.
he can do on an average say
500 parts, or 50 parts per hour
3.3 hours will finished the 165
parts & they are put as fast as
drilled in the other half of the box
~~He~~
He then gets another jig & either
Changes the drills in machine he
was using or steps to another
Machine that has the right drills
& in 3.3 hours he finishes the
2nd part,

The next 3.3 hours he finishes
the 3rd part & has made
his 10 hours, The morning he
turns these into clock room

& goes on to the next parts 3 each day. until the 16 parts are made from all the jigs & these are enough for the weeks work- If

If there are 64 parts it will require 4 men if 54 it will still require 4 men if 67 it will require 5 men
Because its impossible to balance up - Except by increasing the schedule per week for machines & this is bad policy -

This increase will even up from all the Depts

In the case where the output is considerable like the Disc & Cylinder the men only have a few jigs & the stock boxes are placed every day or every other day - in Crates

Where a man can

We shall have to have many Double gauges to stop use of Micrometers which are not handled accurately

Along the Screw machines for instance all the gauges, (high low)

1879 should be at each machine that that particular machine makes parts for — The Inspector as he comes along picks up gauge ~~—~~ inspects the part & puts gauge back on

Another Deep gauge is at clock room —

Another Deep for same part is in the other Dept of factory that receives this part to perform other work on, it still goes to another dept to have work done on it, this 3rd dept has a gauge, sub Assembly ~~or~~ final assembly have no gauge

We should organize a Repair part dept, + this Dept have a supply of every kind and name of all part machines we make for which parts are called for One man can attend to it + keep book in fact a Bookkeeper can run it + he should be given a small place to store his stock, This dept should show a good profit — The man could pack his own stuff + see that it's shipped + possibly the outside travelling Repair men should be under him One boy perhaps to assist this man —

May have to do it,

When get assembling Table ready to assemble #30 in Cabinets Teach new men Taking apart + putting together, until their time has got down fine one of Luhrs men to do this work a bright one, fine mechanic who will do as an efficiency man after we start,

~~Start table in top of Office where nobody in or on Cabinet assembly Sand Wall building - 6 men Assembling + Taking apart #30 Motors till we can get two or 3 good ones, pick best men from gate,~~

Get another Table + try 3 on Big Mach,

Ditto = fix up Belt + Table top of office + take parts for 20 or 30 Disc machines + start necessary men to put

200

Extra men for assembling &
absent men can be kept in
job shop & tool room & called
to factory any time this week
Keep all producing -

1000 -

1100 -

600

500

1500

9